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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**  
**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re the application of:  
Hsueh Sung Tung, et al

Docket: H0005304

Serial Number: 10/626,997

Group Art Unit: 1621

Filed: July 25, 2003

Examiner: Chukwuma O. Nwaonicha

For: PROCESS FOR THE MANUFACTURE OF 1,3,3,3-TETRAFLUOROPROPENE

**REPLY BRIEF**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This Reply Brief is in response to the Examiner's new points of argument set forth in the Examiner's Answer mailed October 29, 2007.

The present invention claims a process for the preparation of HFC-1234ze, which may be represented by:

- a) HCFC-1233zd + HF → under conditions to produce an intermediate comprising HCFC-244fa and/or HFC-245fa;
- b) React the step (a) intermediate HCFC-244fa and/or HFC-245fa + caustic or heat → HFC-1234ze.

The examiner forms a rejection of claims 1, 3, 5-9, 11-17, 19-20, 22-31 and 33-37 over a combination of U.S. 5,895,825 to Elsheikh, et al (E1) and U.S. 6,124,510 to Elsheikh, et al (E2).

On page 4 of the Examiner's Answer, the examiner states the view that E1 shows reacting HCFC-1233ze to form HFC-245fa, and E2 shows dehydrofluorination of HFC-245fa with caustic to produce cis/trans HFC-1234ze. The examiner is of the view that E1 shows a single step process for producing HFC-245fa, E2 shows a single step process for producing HFC-1234ze, and the combination of E1 + E2 would give applicant's combined two-step claims. This is incorrect.

Neither E1 nor E2 show applicant's step (a).

E1 does not show a single step route to HFC-245fa.

E1 ultimately produces HFC-245fa, but by a distinctly different route.

Elsheikh, et al (E1) teaches:

A method for producing HFC-245fa thus:

- a) HCFC-1233zd + HF  $\rightarrow$  under conditions to produce a HFC-1234ze containing mixture, with subsequent separation of HFC-1234ze;
- b) React the separated HFC-1234ze + HF  $\rightarrow$  HFC-245fa.

Elsheikh, et al (E2):

A method producing cis/trans HFC-1234ze by:

Reacting HFC-245fa + strong base  $\rightarrow$  cis/trans HFC-1234ze

Applicant's claims follow the path HCFC-1233zd + HF  $\rightarrow$  (intermediate comprising HCFC-244fa and/or HFC-245fa); and then (step (a) intermediate HCFC-244fa and/or HFC-245fa) + caustic or heat  $\rightarrow$  HFC-1234ze. HFC-1234ze is the ultimate product.

It would be illogical to hypothetically combine E1 with E2 since this would entail:

- i) HCFC-1233zd + HF  $\rightarrow$  HFC-1234ze
- ii) separation of HFC-1234ze
- iii) reacting separated HFC-1234ze + HF  $\rightarrow$  HFC-245fa

iv) HFC-245fa + strong base → cis/trans HFC-1234ze.

The examiner's proposed combination of E1 + E2 would require the illogical steps iii) and iv after a step ii. That is, of producing HFC-1234ze, converting HFC-1234ze to HFC-245fa, and then reconverting HFC-245fa back to HFC-1234ze.

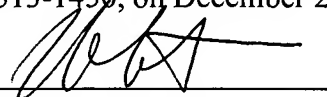
For these reasons it is submitted that the combination of cited references does not teach or suggest the invention claimed by Applicants. For all the above reasons, claims 1-35 are urged to be patentable over the cited references, and the rejections under 35 U.S.C.103 should be overruled.

Respectfully submitted,



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Date: December 20, 2007

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail, postage pre-paid in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on December 20, 2007.



Richard S. Roberts